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THE AEROPLANE SPOTTER

FOR THE ALERT

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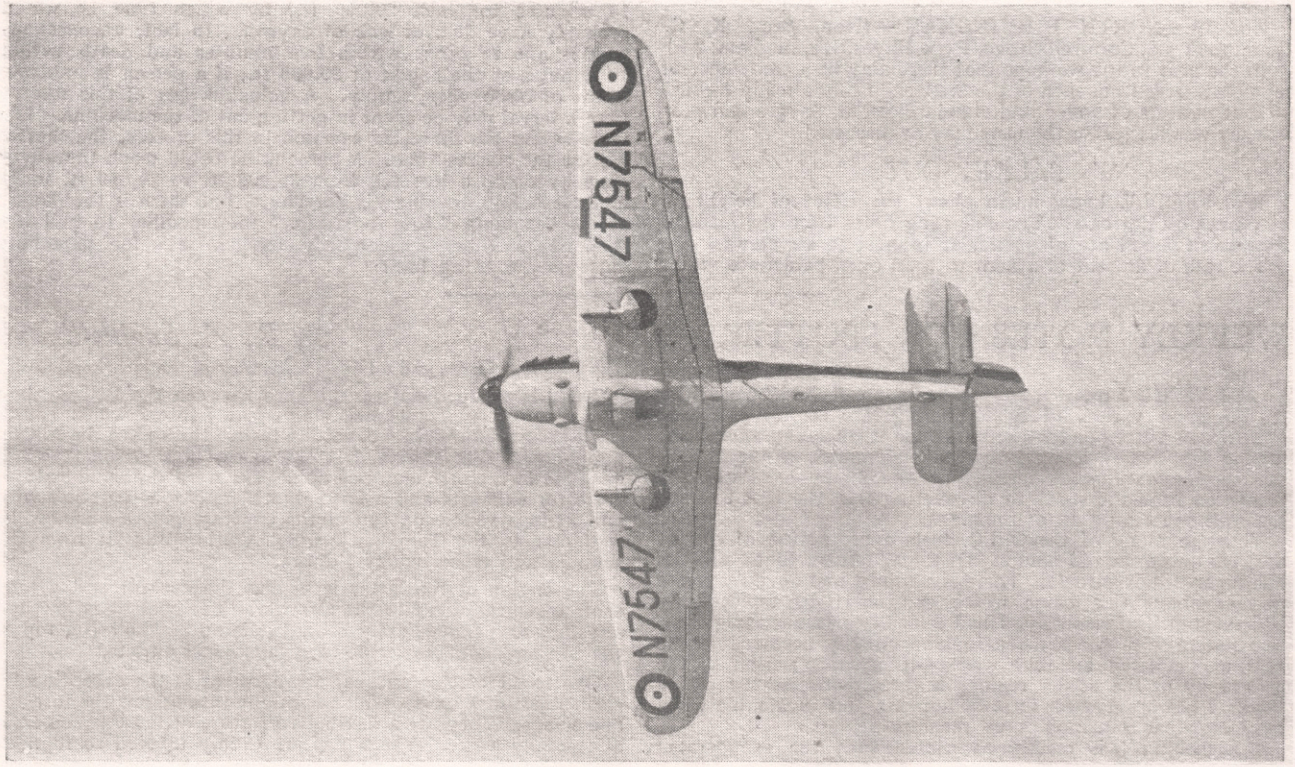
THE BULLETIN OF THE OBSERVER CORPS CLUB

Edited by PETER G. MASEFIELD
M.A. (Eng.) Cantab; A.F.R.Ae.S.
Technical Editor of "THE AEROPLANE."



[" *Aeroplane* " *photograph*

POWER OF MANŒUVRE.—A MILES MASTER PERFORMS A SLOW ROLL.

NOTES FOR INAUGURAL MEETINGS

The following notes on the conduct of Inaugural Meetings were drawn up for new Branches of the Observer Corps Clubs. With some modification they apply equally well to Inaugural Meetings of Spotters' Clubs. We commend them to those who are hoping to found new Branches and Spotters' Clubs.

1. Discuss aims and object of the Club (to encourage Members to improve their knowledge of the recognition of aircraft and to provide a social contact between neighbouring posts).

2. Describe procedure of Club Meetings, viz.:—

(a) An instructional paper is given by a Member of the Club. At some Branches each affiliated post takes its turn to give a paper on a separate group of machines; in other instances a Member has volunteered to give a series of progressive talks.

(b) An "outside" speaker is invited, when possible an expert in some branch of aeronautics. Officers from local R.A.F. Stations and A.A. Training Establishments have been most helpful. Designers from local aircraft factories have also volunteered their services. Films and prepared papers by courtesy of the Royal Aeronautical Society are other alternatives. The Club is a "Group Member" of the Air League of the British Empire and contact should be made with the Secretary. Official films can be used if available.

(c) **Spoon Competition.** The meetings end with a Spoon Competition, the winner receiving a silver spoon. Competitors who score 25 points or more are awarded their Third Class Certificate. (See previous notes for rules governing competitions.)

> *SPECIAL NOTE.* It is important (i) that the competition is conducted in absolute silence; (ii) that no Member checks his own paper.

3. Read the Constitution of Club and invite questions. If approved, put the resolution to meeting, as shown on back of "Consultation" Form. Annual subscription 3s. 6d.

4. Elect Officers.

Chairman. Generally a Head Observer, but not always.

When the Chairman of new Branch has been elected, the Chairman of the Inaugural Meeting should invite him to take the Chair and to proceed with the election of other Officers.

Hon. Treasurer. An Observer Accountant or Bank Clerk is asked to volunteer.

Hon. Secretary. The hardest job. He arranges meetings and speakers in consultation with the Chairman and the Hon. Treasurer.

Hon. Attendance Officer. Keeps the Attendance Book and observes conditions laid down by Area Commandant or O.G.O. for claiming petrol allowance.

Hon. Competition Officer. Should be an Observer with a sound knowledge of aircraft. He arranges the monthly competition and declares the results.

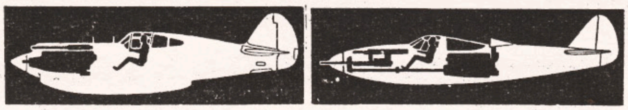
Hon. Auditor. Any suitable volunteer.

President. The O.G.O. should be invited to accept this office.

Do not spend much time on these preliminaries, and arrange for a speaker to give the first address on "The constructional parts of aircraft from the point of view of recognition by Ground Observers." Close the meeting with the First Spoon and Certificate Competition. Declare the results.

Forms of Resolution for the formation of new Branches of The Observer Corps' Club, which should be completed at the Inaugural Meeting and forwarded to the Hon. Organising Secretary for registration, can be had from him: Mr. H. James Lowing, 39, High Street, Guildford.

NEWS OF THE WEEK



TWO SOLUTIONS.—How the Allison motor is installed in the Tomahawk (left) and the Caribou (right). The diagrams show the fuselage armament and the way the cannon fires through the airscrew boss in the Caribou.

THE SPOTTERS' CLUBS

WE HAVE received notice of the formation of the following new Spotters' Clubs: —

No. 13.—BRIXTON.—(Hon. Sec., B. Dibden, 102, East Dulwich Grove, London, S.E.22.)

No. 14.—G.P.O., WIGAN.—(Hon. Sec., H. Pyett, G.P.O., Wigan, Lancs.)

No. 15.—NORTH BIRMINGHAM.—(Hon. Sec., K. C. Glassbrook, 38, Cranwell Grove, Pype Hayes, Birmingham, 24.)

In the near future we hope that there may be a conference of representatives from each of the Spotters' Clubs already formed so that matters of policy and standardisation, badges and proficiency certificates for the tests may be discussed.

BALING OUT

FEW PEOPLE know much about the effect of height in parachute descents. The following notes from the Medical Research Council are of particular interest to air crews.

The rate of descent of a man with an open parachute varies directly with his weight and inversely with the density of the air. On baling out at 35,000 ft., the rate of free fall will vary, depending on the speed of the aeroplane, but it will rapidly become about 160 ft. per second, or 110 m.p.h. This is reduced by the opening of the parachute to about 36 ft. per second, or 25 m.p.h., at those heights.

The following table is from the "Journal of Aviation Medicine":—

Approximate Rate of Descent of a Man of 11 stone, with Open Parachute, 25-ft. diam.

Ht. in ft.	Rate of fall in ft. per min.	Ht. in ft.	Rate of fall in ft. per min.
35,000 ...	2,160 = 25 m.p.h.	20,000 ...	1,620 = 19 m.p.h.
30,000 ...	1,980 = 23 m.p.h.	15,000 ...	1,500 = 17 m.p.h.
25,000 ...	1,800 = 21 m.p.h.	Sea level	1,200 = 14 m.p.h.

Thus if an aviator escaped from an aeroplane at 35,000 ft. and opened his parachute rapidly, he would take about 10 minutes to reach 20,000 ft., by which time he would probably have died of lack of oxygen. In fact, unconsciousness is apt to occur within five minutes and death within 10 minutes at the height of 30,000 ft., if a person is suddenly bereft of his oxygen supply. A valuable part of this reserve time interval may be spent in getting out of the machine. The more severe the muscular exertion in this process, the shorter will be the reserve time. A parachutist could reach the safety zone by doing a free fall from 35,000 ft. to 20,000 ft. in 1½ minutes before opening his parachute, but there is the danger of his becoming "too anoxæmic" to remember to pull the rip-cord in time. Emergency oxygen sets for parachute descents are being built.

WEEKLY NOTES FOR SPOTTERS—X

By R. A. Saville-Sneath

(Member of the Observer Corps and a Founder Member of the Hearkers' Club.)

LAST WEEK I referred to "spotters' headaches," caused by the great variety of types coming into service from the U.S.A. A correspondent reminds me that many observers, having laboriously learned the makers' names or the U.S.A. service designations of these types—or both—have not yet recovered from the shock of discovering that the R.A.F. have renamed practically all of them.*

Thus, in many of the O.C.C. tests a proportion of correct answers quote the old names. Of these, I think that "Curtiss Helldiver" dies hardest. There is a robust and devil-may-care quality about this name which can never be replaced by "Cleveland." Personally, I had difficulty in associating these two names with the same aeroplane until it occurred to me that a completed hell-dive would—if my recollection of the geography of the nether regions is correct—necessarily *cleave land*. Puns are a weak form of humour, but invaluable when they serve as mnemonics or memory-ticklers.

"Lightning" is readily associated with the exaggerated speeds which were at first claimed for the unconventional Lockheed P.38. Mohawk and Tomahawk can be easily placed as the two successors of the well-known Curtiss Hawk. The "O" in the "Mo" suggests the radial motor. Caribou, after a slight rearrangement of consonants, comes naturally enough out of "Airacobra."

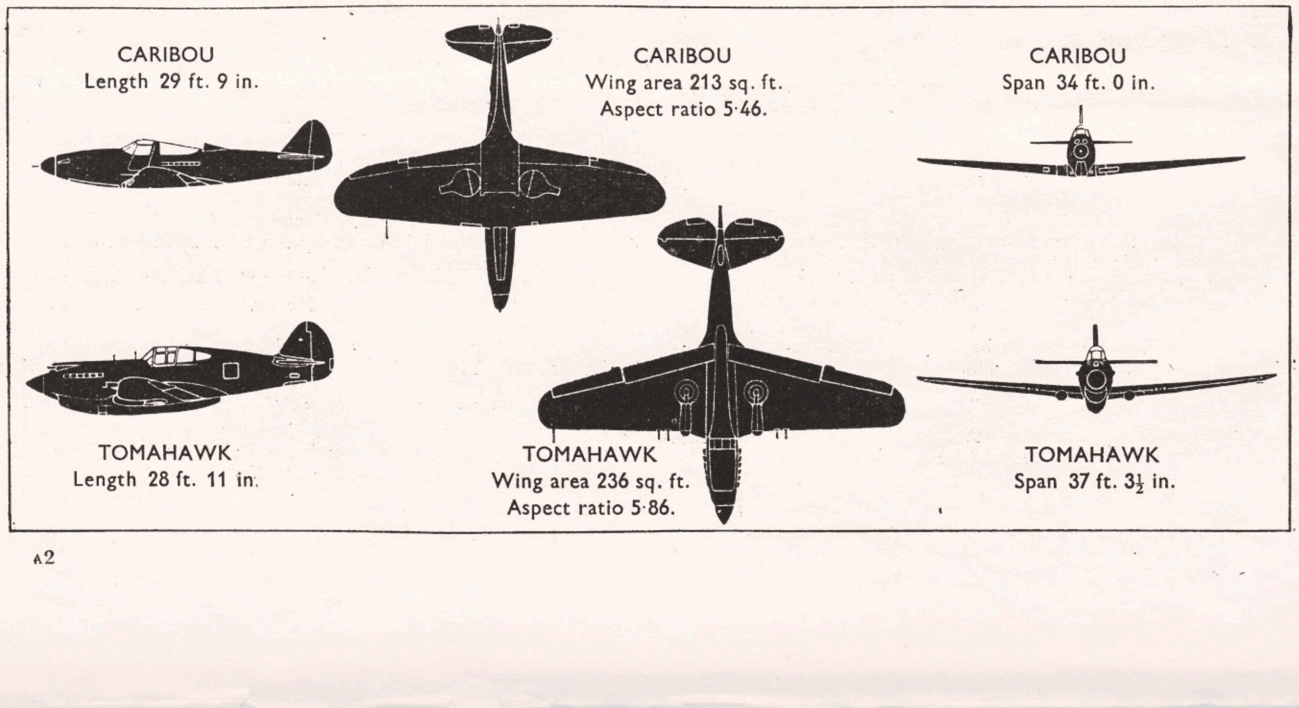
[* *A complete list of American names and numbers and their British names was published in* THE AEROPLANE SPOTTER *on Jan. 23.*—ED.]

There is a superficial resemblance between the Bell Caribou and the Curtiss Tomahawk single-seat fighters which causes them to be confused in recognition tests. Both have the Allison liquid-cooled Vee engine, but the motor of the Tomahawk is installed in the orthodox position. The normal engine features—ejector exhausts and a large ducted radiator—together with gun fittings visible on top of the cowling, give a businesslike character to the Tomahawk which distinguishes it from the slimmer and rather snaky "Cobra."

The engine of the latter is behind the cockpit and a long shaft takes the drive to the airscrew. The cockpit is low and streamlined. Immediately behind it is an air duct (on top of the fuselage) and, lower down, the exhaust outlets.

One result of this unusual arrangement is the exceptionally clean lines of the nose, which continue throughout the fuselage and wings. They are a distinctive feature of the Caribou from almost any angle. The wings are evenly tapered to rounded tips with well-marked dihedral.

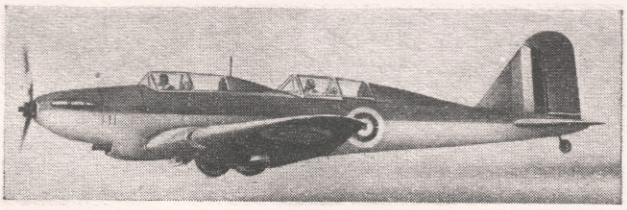
In contrast, the Tomahawk has several familiar Curtiss points: (1) The leading edge of the wings is practically straight, with all taper on the trailing edge. (2) The tail unit shows a strong family likeness to Mohawk, Hawk and Cleveland. (3) The wings of the Tomahawk and Mohawk have only moderate dihedral and both show two characteristic "bosses" on the leading edge, which are hinges on the backwards retracting undercarriage.

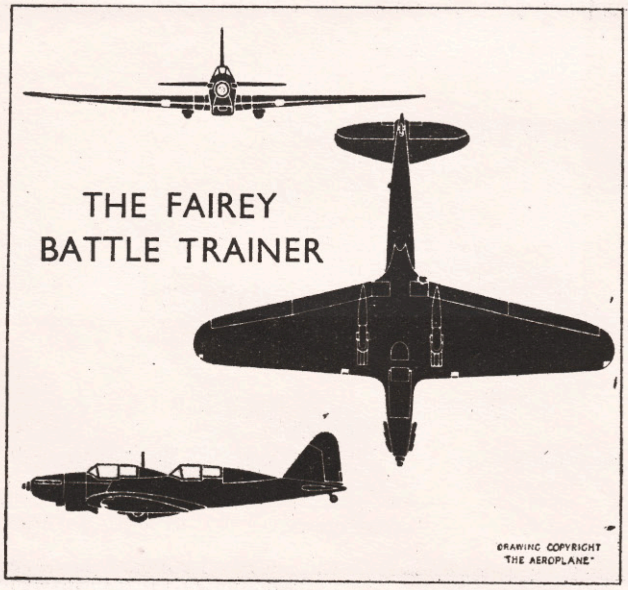


AIRCRAFT IN THE NEWS—X

THE FAIREY BATTLE TRAINER

After its fine work with the Advanced Air Striking Force of the R.A.F. in France against the whole might of the Luftwaffe, the Fairey Battle is now being used extensively as an advanced trainer. For training the cockpit enclosure of the Battle has been modified to afford a reasonable view for the instructor from his rear seat. The training Battles with their divided " glasshouse " have caused some identification confusion.





Curiously enough in its new arrangement the Battle returns to the original conception of the design when it was first laid out on the drawing-board in 1934. The double cockpit enclosure then planned was changed to the single long " glasshouse " in the interests of performance. In fact the split cover takes about 10 m.p.h. off the top speed. The 1,030 h.p. Rolls-Royce Merlin III gives the Battle Trainer a top speed of 240 m.p.h. at 17,500 ft.

With the new arrangement the instructor at the back has a windscreen of his own and, although his view is still limited, he can see well enough to land the machine when necessary.

The Battle goes down to history as one of the first all-metal stressed skin monoplanes to be ordered when the expansion of the R.A.F. began in 1935. It owes something in its conception to the American Northrop Gamma, which although much smaller, pointed the way towards the modern high-performance single-motor day-bomber.

The leading particulars of the Battle Trainer are:—

Dimensions.—Span 54 ft. 0 ins.; length 42 ft. 2 ins.; height 15 ft. 6 ins.; wing area 422 sq. ft.; aspect ratio 6.9.

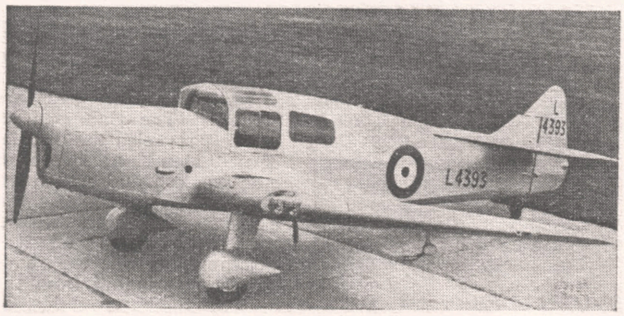
Weights.—Empty 6,650 lb.; loaded 10,700 lb.; wing loading 25.4 lb. per sq. ft.

Performance.—Top speed 240 m.p.h. at 17,500 ft.; range 1,000 miles at 200 m.p.h.; initial climb 900 ft. per min.; service ceiling 25,000 ft.

Points of Recognition.—Low-wing monoplane with nearly all its wing taper along trailing-edge. Long, slim fuselage with two separate raised cockpit enclosures. Tall single fin and rudder with straight leading and trailing edges. Undercarriage retracts backwards under wings and leaves half of each wheel exposed.

CIVIL IDENTIFICATION—X

THE PHILLIPS AND POWIS MILES MENTOR I



Intended as a trainer when it was first produced in 1937 the Phillips and Powis Miles Mentor I (210 h.p. D.H. Gipsy-Queen I motor) has been and still is, used as an inter-communication type. It resembles the Miles Whitney Straight and it might be considered a cross between the Whitney Straight and the Miles Falcon.

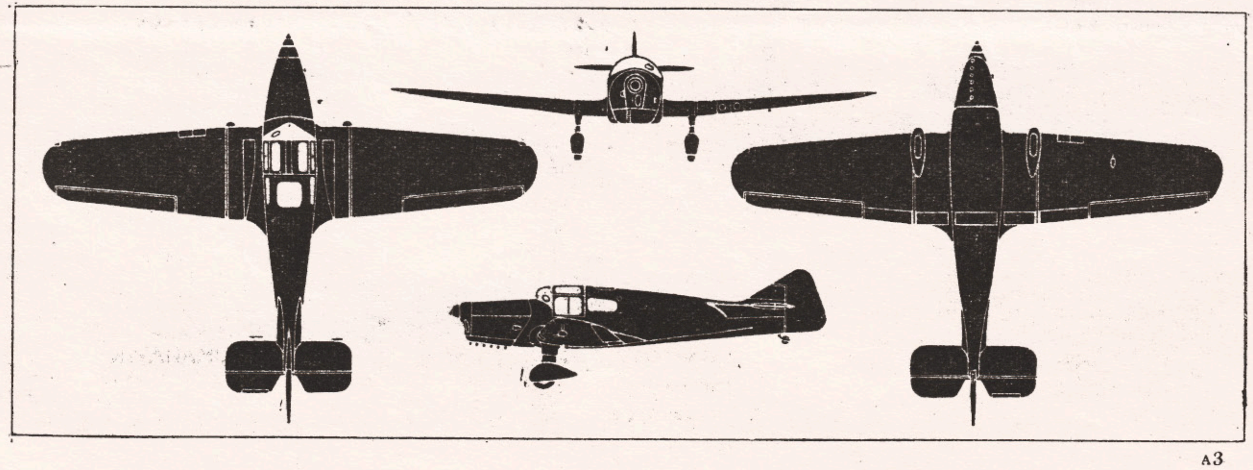
The Mentor I is a two-seat cabin low-wing cantilever monoplane of wood construction with plywood covering. Accommodation is for two pilots or a pilot and an observer side-by-side. The undercarriage is fixed and faired. It has a single fin and rudder. Prominent features are the twin landing lights in the leading-edge of the port wing.

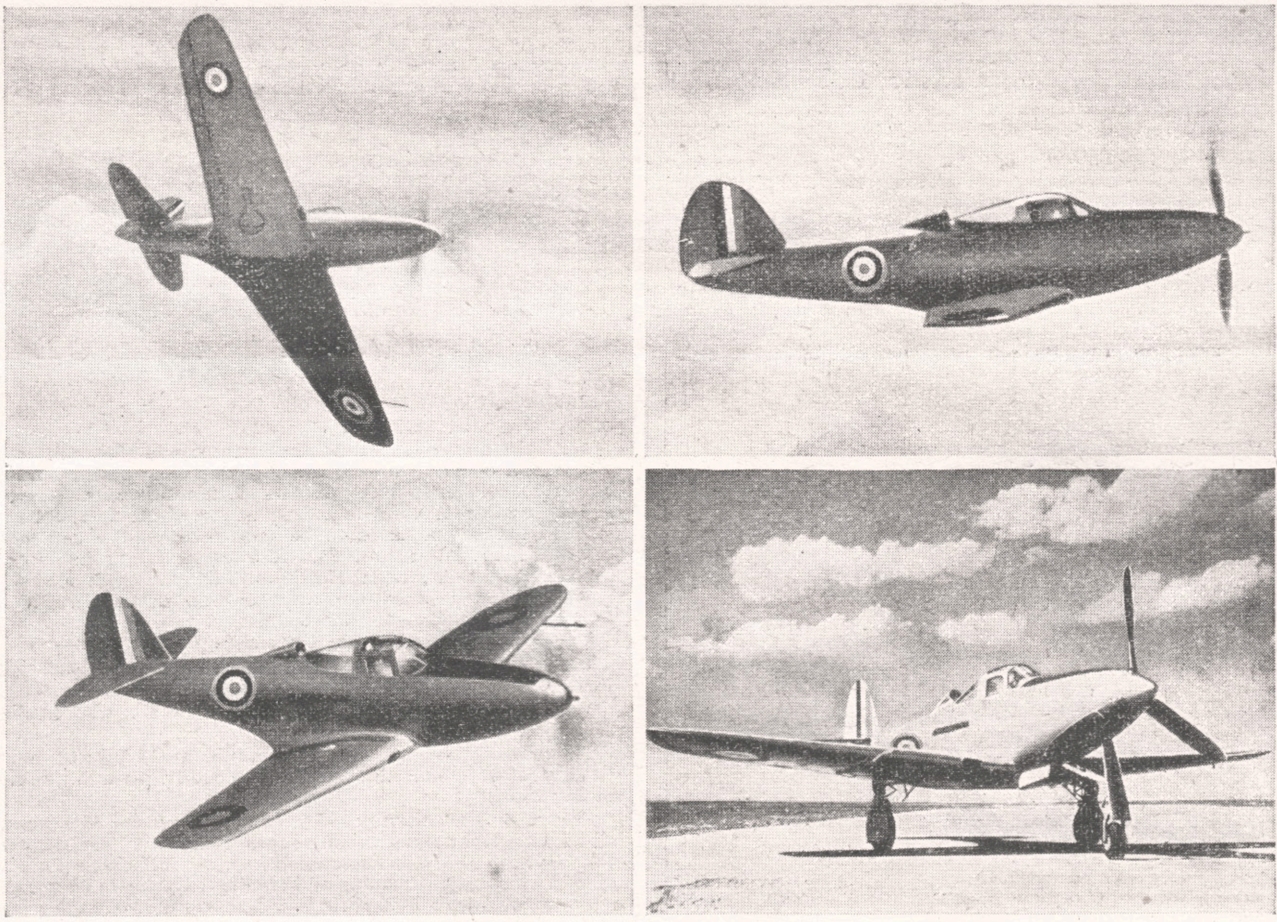
Dimensions.—Span, 34 ft. 9 ins.; length, 26 ft. 8 ins.; height, 9 ft. (airscrew vertical); wing area, 181.5 sq. ft.; aspect ratio 6.62.

Weights.—Empty, 1,750 lb.; loaded, 2,650 lb.

Performance.—Top speed, 170 m.p.h. at 1,000 ft.; range, 460 miles at 150 m.p.h. at 6,000 ft.; initial climb, 925 ft. per min.; service ceiling, 17,000 ft.

Points of Recognition.—Low-wing cabin monoplane with almost rectangular wings and rounded tips. Slight taper on trailing edge. Deep, narrow nose. Angular single fin and rudder. Rectangular tailplane with cut-out in trailing edge. The tailplane is set just below the top of the fuselage, and the anti-spin strake is attached to the leading edge and faired into the fuselage. Fixed and faired undercarriage with wide track.





THE CARIBOU.—This unorthodox single-seat fighter will soon be arriving in this country. The Caribou is the name given by the R.A.F. to the Bell Airacobra. The Allison motor is mounted behind the pilot and drives the airscrew through a shaft. The Caribou has a tricycle undercarriage. Armament is eight machine-guns, and one 37 mm. cannon firing through the airscrew shaft.

Aircraft Recognition

A FAIREY FULMAR (1,145 h.p. Rolls-Royce Merlin X motor) and a flight of Handley Page Hampden bombers (two 1,000 h.p. Bristol Pegasus XVIII motors) were last week's test problems.

The Fulmar two-seat eight-gun fighter of the Fleet Air Arm is exceedingly difficult to identify with absolute precision in the view shown. Its chief characteristic is the great chord of the wings at the roots, which much exceed that of the Battle, the Hurricane, the Spitfire or the Master. The nearly equal taper on leading and trailing edges of the wings and the long narrow nose are all points to note.

The three Hampdens are easier. The Hampden on the left revealed the distinctive "step" at the after gun position underneath the fuselage. The twin fins and rudders were just distinguishable on all the machines, as was the sharp dihedral springing from the roots of the outer sections of the wings which begin well outboard of the nacelles of the radial motors. Confusion with the Hereford was inexcusable as the circular motor cowlings were obvious.

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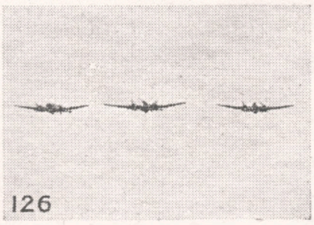

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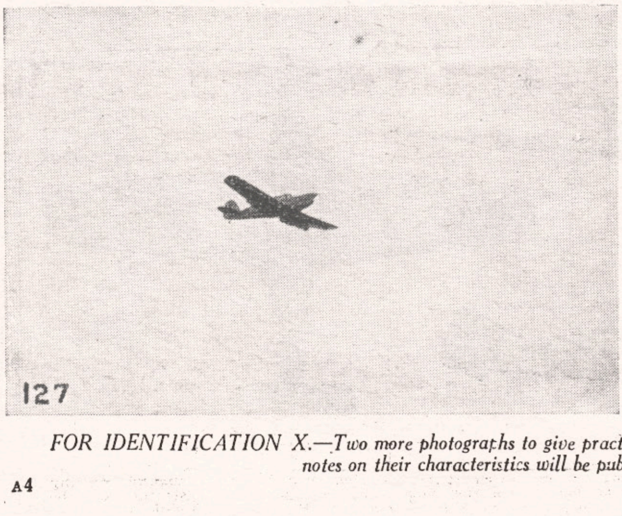
LAST WEEK'S PROBLEM.—(Left) A Fulmar and (right) H.P. Hampdens.



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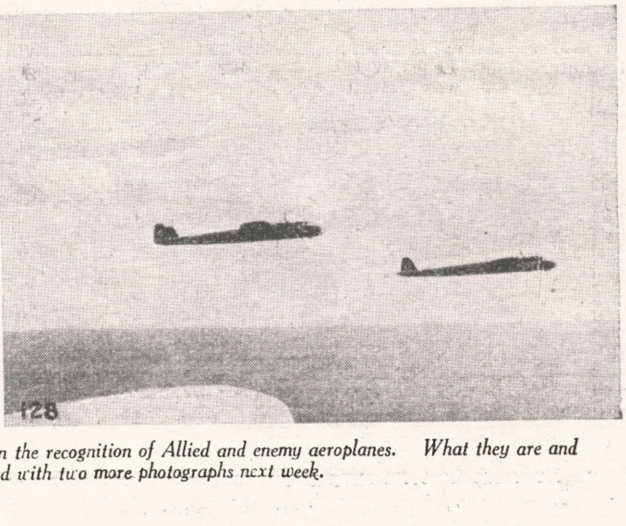

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FOR IDENTIFICATION X.—Two more photographs to give practice in the recognition of Allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs next week.

THE OBSERVER CORPS CLUB

(FORMERLY THE HEARKERS' CLUB)

Hon. Secretaries are earnestly requested to keep their reports as brief as possible because of the growth of the Club and the acute paper shortage.

BRANCH 1 (GUILDFORD)

Hon. Sec.: H. M. Frost, "Ferrers," Woodland Way, Oatland Avenue, Weybridge.

THE MONTHLY MEETING was held on Feb. 22 at the New Technical College, Guildford. The Chair was taken by Mr. R. A. Saville-Sneath. The following Officers were elected unanimously:—

To serve on the Branch Council: K. F. R. Cable, L2/3; C. E. Latter, V4/19; D. M. Edwardes, V3/19. To serve on the Area Council: C. H. Morice, L2/3. To serve as the Club's Delegate at the A.G.M. of the O.C.C. to be held in June: C. F. Andrews, N3/4. To serve as Hon. Sec. to No. 1 Club vice K. G. I. Scott: H. M. Frost, X2/19.

The meeting resolved that the O.G.O. Group 19 and A.O.G.O. should be invited to become President and Vice-Presidents respectively of No. 1 Club. Mr. D. Symington kindly offered to serve as Hon. Auditor and was unanimously elected.

The Club was pleased to welcome Col. A. FitzGerald, O.B.E., President of No. 1 Club, in person.

Members heard with much regret of Mr. Scott's resignation as Hon. Sec. for business reasons, which take him out of the area, and he carries with him the good wishes of the Club.

In the first of the Ten Minute series, "Tips from the Posts," Mr. D. M. Edwardes, V3/19, gave a most interesting talk and some useful hints on recognition. He was followed by Mr. Leonard Taylor, who spoke on "The Air Training Corps," and explained how Observers could assist the local Squadrons in various forms of training.

The Third Class Test was held after tea, followed by a Second Class Test, which counts as the first half of the First Class Test. The following qualified for the O.C.C. Certificate, Third Class:—

W. Andrews V1/19; E. F. Batch, A.O.G.O./19; P. Black, V/19; J. G. Caesar, L2/3; M. S. Dey, V4/19; A. E. Foster, X1/19; H. M. Frost, X2/19; W. S. H. Julian, V2/19; C. E. Latter, V4/19; B. E. Leach, V1/19; H. J. Lowings, V3/19; A. Pitkin, C3/3; G. Rimmer, N3/4; G. S. Sansom, R3/2; F. C. Scobie, X1/19.

Six members obtained 100 per cent., and in an Eliminator, F. H. Smith, V2/19, was the winner of the Monthly Spoon Competition.

The following qualified in the Second Class and are eligible to sit for the second half of the First Class at our next meeting:—

Passed with "Distinction": B. R. Bartholomew, X2/19; R. A. Saville-Sneath, X2/19 (full marks); F. H. Smith, V2/19; M. T. Wells, V2/19.

Passed with "Credit": C. F. Andrews, N3/4; J. E. Boxall, V3/19; G. C. Clarke, N3/4; E. C. Davies, X1/19; H. Goodland, X1/19; K. Roberts, N3/4; A. C. Trinder, V1/19. Passed: C. D. Brown, X1/19; H. Carr, X1/19; C. C. Gordon, V1/19; S. C. Stainton, X1/19; R. W. Thompson, X1/19.

BRANCH 13 (BODMIN)

Hon. Sec.: T. H. A. Truscott, "Polscoe," Launceston Road, Bodmin, Cornwall.

THE FIRST MONTHLY MEETING was held on Tuesday, Feb. 12, in the Church Institute. Capt. Lodge, O.G.O., and Mr. Cooke, A.O.G.O., were present.

Two officers of the R.A.F. brought along a "talkie" cinematograph, and both gave talks on Aircraft Identification in conjunction with the official films.

The Third Class Test was held, and the following passed:—

D. H. Toleman (31); T. H. H. Truscott (31); B. S. Gordon (30); L. Parnell (28½); H. E. Parminter (25½).

BRANCH 24 (BEXHILL)

Hon. Sec.: A. E. Gardner, 13, Sackville Road, Bexhill.

THE INAUGURAL MEETING was held on Feb. 16 at the Devonshire Hotel, Bexhill, at 11.00 hrs. The Hon. Organising Secretary, H. James Lowings, attended, supported by the O.G.O. and A.O.G.O. of Group 1, and 34 Observers from the neighbouring posts.

The following officers were elected:—

President: Col. Bamford, O.G.O., Group 1.

Vice-President: Major Burke, A.O.G.O., Group 1.

Chairman: R. C. Sewell, J2.

Hon. Secretary: A. E. Gardner, J2.

Assistant Secretary: S. L. Spray, J2.

Hon. Treasurer: F. Willing, J2.

Hon. Competitions Officer: C. Watson, J1.

Hon. Attendance Officer: N. Ellercamp, J1.

Following the election a competiton for identification showed a fair standard of efficiency amongst all observers present. One entrant, Observer Bannister (H3) obtained 30 out of a possible 31 points, and the general average exceeded 20 points.

The new committee will meet soon to make arrangements for meetings, speakers and the holding of competitions.

BRANCH 26 (HIGH PEAK)

Hon. Sec.: A. T. Forbes, 24, Dorland Avenue, Debdale Park, Gorton, Manchester, 18.

THE INAUGURAL MEETING was held on Feb. 22 at Taxal Schools, Whaley Bridge. Despite the fact that C2 was snowbound, and travelling generally was difficult, 65 Observers were present. After short addresses by Lt. Col. Dalton, O.G.O., and Col. Robinson, the meeting adopted the Constitution of the Club and the following officers were appointed:—

President: Lt. Col. E. Tuite Dalton, M.C., O.G.O.

Vice-Presidents: Capt. H. Walker, M.C., H. Lee and H. R. Whitty, A.O.G.O.

Chairman: W. H. Clare Lees.

Hon. Secretary: A. T. Forbes.

Hon. Treasurer: H. Hardy.

Hon. Competitions Officer: F. J. Hitchens.

Hon. Attendance Officer: A. Shatwell.

Hon. Auditor: W. N. Roughley.

The meeting concluded with three films of identification interest.

BRANCH 27 (GOLDTHORPE)

Hon. Sec.: C. Turner, Korogwe, Hemsworth, near Pontefract.

THE INAUGURAL MEETING was held on Sunday, Feb. 23 at Half Way Hotel, Goldthorpe. The following officers were elected:—

President: Capt. H. A. Jowett, O.G.O.

Vice-Presidents: Capt. J. Barrett, A.O.G.O.; J. Downs, A.O.G.O.

Chairman: Will Bentley, Y3.

Hon. Secretary: C. Turner, Y3.

Hon. Treasurer: T. W. Nelson, Y1.

Hon. Competitions Officer: W. Hall, R2.

Hon. Attendance Officer: E. Finney, R1.

Hon. Auditor: Mr. Allen, R3.

Branch Council: J. J. Storey, X1; H. H. V. Hornsby, X2; S. Wentworth Smith, R4.

The Third Grade Test was held after the meeting with the following results:—

S. Wentworth Smith, R4 (31 marks); N. W. Henson, Y3 (30½); R. S. Bagley, Y1 (30); W. C. Crossland, X2 (29); E. B. Wilson, Y3 (28½); D. Wood, R4 (28½); — Warrington, X2 (28); P. Bagley, Y1 (28); J. Shaw, Y1 (28); L. Wilmott, R2 (27½); T. W. Nelson, Y1 (27½); C. Turner, Y3 (27½); F. Mundin, R2 (27); — Dudmentor, R4 (27); W. M. Gunner, R3 (26); H. H. V. Hornsby, X2 (26); W. Patrick, R3 (25½); W. Adamson, R3 (25½); J. Ellis, Y1 (25½).

BRANCH 28 (IGHTHAM)

Hon. Sec.: W. H. Ware, "Kinover," Wrotham Road, Borough Green, Kent.

THE INAUGURAL MEETING was held on Feb. 23 at Ightham Village Hall. Mr. E. F. Batch was in the Chair. Mr. J. Collett and Mr. R. C. Brown, from Branch 2 (Shirley), attended and explained the objects and aims of the Club, which was formed on the proposal of Mr. W. T. Poulton, seconded by Mr. P. Lambert.

The following officers were elected:—

President: Col. A. Fitzgerald, O.B.E., O.G.O. Group 19.

Vice-Presidents: Lt. Col. P. Bamford, O.G.O. Group 1; E. F. Batch, A.O.G.O.

Chairman: L. S. Daniels, R3.

Hon. Secretary: W. H. Ware, R3.

Hon. Treasurer: H. Milsted, R1.

Hon. Attendance Officer: G. Coates, S2.

Hon. Competitions Officer: K. S. Rogers, R3.

Committee Members: H. Jenkins, S1; H. R. Malyan, S2; W. T. Poulton, R3.

After a talk on "General Identification of Aircraft," by Mr. R. C. Brown, the Third Class Test was taken by the 23 Observers present, representing six posts. Three members succeeded in passing. Mr. W. T. Poulton (R3) won the Silver Spoon with 26½ points, with Mr. E. F. Batch (A.O.G.O.) and Mr. H. R. Malyan (S2) each tying for second place with 25½ points.

A MEETING AT THAME

A DINNER was held by members of Post R3, Group 4 of the Observer Corps at the Spread Eagle Hotel, Thame, on Feb. 4. Captain Gardiner, O.G.O., took the Chair and was supported by Mr. P. W. Hicks, Head Observer of R3. Mr. P. de Beer (Head Observer R1), Mr. J. Porsler (Head Observer R2), Mr. Shuttleworth (Head Observer Z2) and Mr. Thatcher (Head Observer Z3) were present with guests from Centre, other Posts in the Group and 18 members of R3.

Toasts were proposed by Mr. P. W. Hicks and Mr. H. M. Purser, and responded to by Capt. Gardiner, who outlined plans for a Branch of the Observer Corps Club in the district, and by Mr. de Beer. Thanks were expressed to the two members of Post Z2, who acted as a relief crew to man R3 during the dinner.

RECOGNITION TEST CARDS

WE MUCH REGRET that a further delay in the general issue of the standard sets of cards for Third Class Tests has been caused by the paper shortage. Paper is now being manufactured for the large numbers of these cards required and they will be available by the first week in April—D.V. Meanwhile, a strictly limited number of sets is being sent out, one to each Branch of the O.C.C. and one to each Spotters' Club, so that Club tests will not be delayed.

FORTHCOMING EVENTS

Mar. 9.—Shirley.—O.C.C. Branch 2 (Shirley).—Talk by S. P. Cushing on "General Principles of Identification."—Third Class Test.—10.00 hrs.

Mar. 9.—Watford.—O.C.C. Branch 3 (Hendon).—Talk by Peter Masefield on "The Evolution of the Single-seat Fighter 1913-1941," and "Centre Procedure" by G. R. Bolton.—Third Class Test.—At Watford Public Library.—10.30 hrs.

Mar. 16.—Otley.—O.C.C. Branch 11 (Otley).—Show of flying films at local cinema.—15.00 hrs.

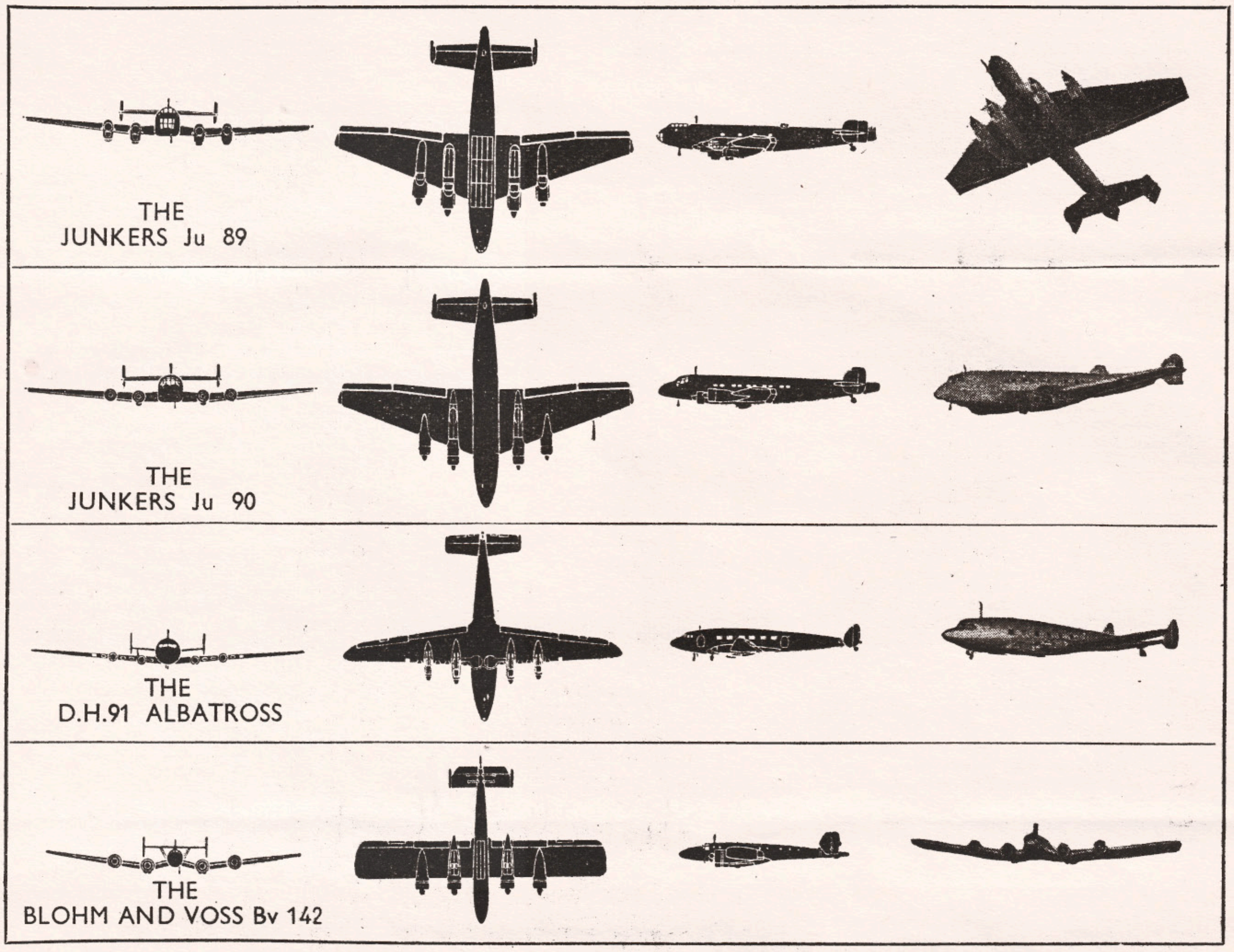
Mar. 23.—Ightham.—O.C.C. Branch 28 (Ightham).—Meeting at Ightham Village Hall.

Mar. 29.—Whaley Bridge.—O.C.C. Branch 26 (High Peak).—Meeting at Taxal School, Whaley Bridge.

April 6.—Otley.—O.C.C. Branch 11 (Otley).—Talk by Mr. Leonard Taylor on R.A.F. Training.—Third and Second Class Tests.—At the Westbourne Hotel, Otley.

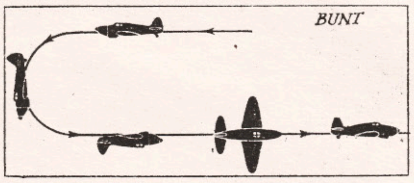
April 13.—Shirley.—O.C.C. Branch 2 (Shirley).—Annual General Meeting.—Third Class Test.—Talk by Peter Masefield.—10.00 hrs.

AIRCRAFT COMPARISON—X.—FOUR MOTORS AND TWIN TAILS



HEAVY STUFF.—Four more four-motor monoplanes, this time with twin fins and rudders. All are drawn to the same scale. The Ju 89 is the military version of the Ju 90 civil transport, the Bv 142 the landplane version of the Ha 139B twin-float seaplane.

THE SPOTTER'S GLOSSARY OF AERONAUTICAL TERMS



BUNT.—The first half of an inverted or outside loop in which an aeroplane dives past the vertical into an inverted position and then returns to a normal attitude by a half roll or through half a normal loop. In a bunt the forces tend to throw the pilot from his seat and to break the wings downwards. Because of the abnormal stresses put upon an aeroplane in a bunt it is not encouraged as a manœuvre.

BURAN (pronounced Boorarn).—A strong wind from the North-East in Russia and Central Asia.

BUY'S BALLOT'S LAW.—A truism which states that if an observer stands with his back to the wind, pressure is lower on his left than on his right in the Northern Hemisphere. It doesn't matter to Spotters, but it is an interesting aerodynamical fact.

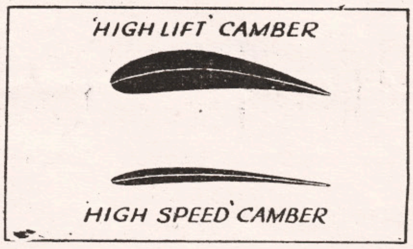
BALE OUT.—An expression which has become common parlance for the abandoning of an aeroplane and descending by a parachute. It was derived from the act of baling out a boat.

C

CABANE.—The term for a tripod arrangement of struts, usually at the centre-section of a biplane. Sometimes called a PYLON.

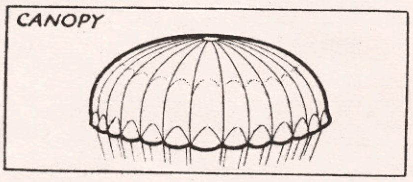
CABIN.—An enclosed compartment in an aeroplane or airship for housing the crew and passengers (if any).

CALM.—The absence of any appreciable wind.



CAMBER.—The curvature of the surface and/or centre line of an aerofoil section which causes lift. A heavily cambered aerofoil is usually a high-lift section. A slightly cambered aerofoil is usually a high-speed section.

CAMERA OBSCURA.—A darkened enclosure which has a lens in the roof designed to throw the image of an aeroplane or cloud on a horizontal screen. Sometimes used for determining the speed of an aeroplane.



CANOPY.—The large envelope of a parachute which, when opened, offers resistance to motion through the air.

CANT.—To tilt or to incline at an angle.

CANTILEVER.—A term for a structural member rigidly attached at one end to a rigid support, and unconnected by any bracing members. The term is often used with reference to wings or undercarriage legs which have no external bracing.

CAPTIVE BALLOON. — A balloon secured or towed by a cable.

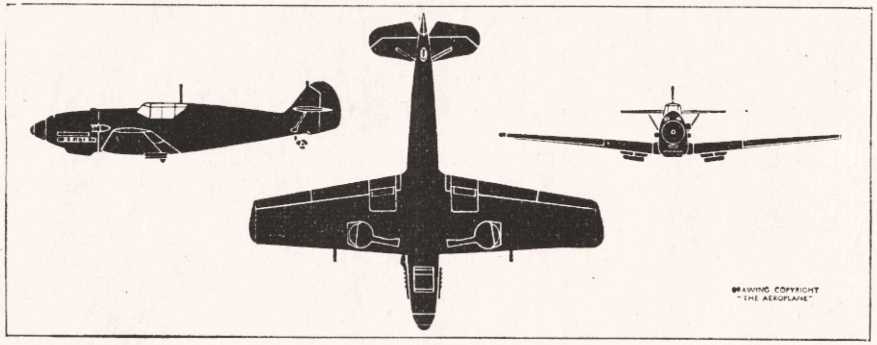
CARBURETTER.—A device which, with the aid of a draught of air, converts the fuel supply to an aero-motor from a fluid to a vapour which is mixed with an appropriate amount of air and introduced into the induction pipe.

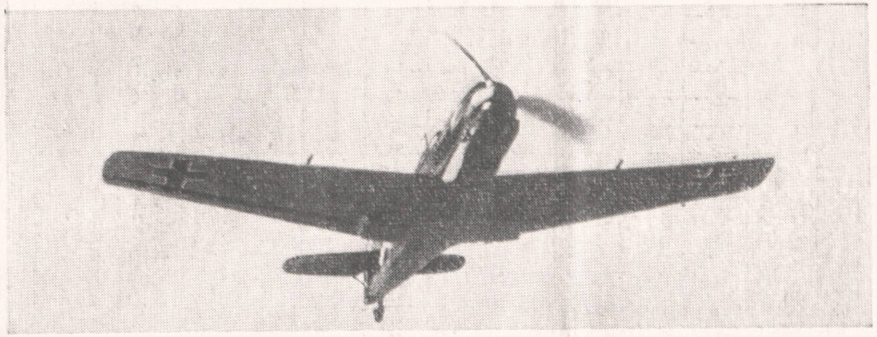
CARTRIDGE STARTER.—A means of starting an aero-motor in which a cartridge is electrically fired in a cylinder and forces down one piston, thus rotating the crankshaft.

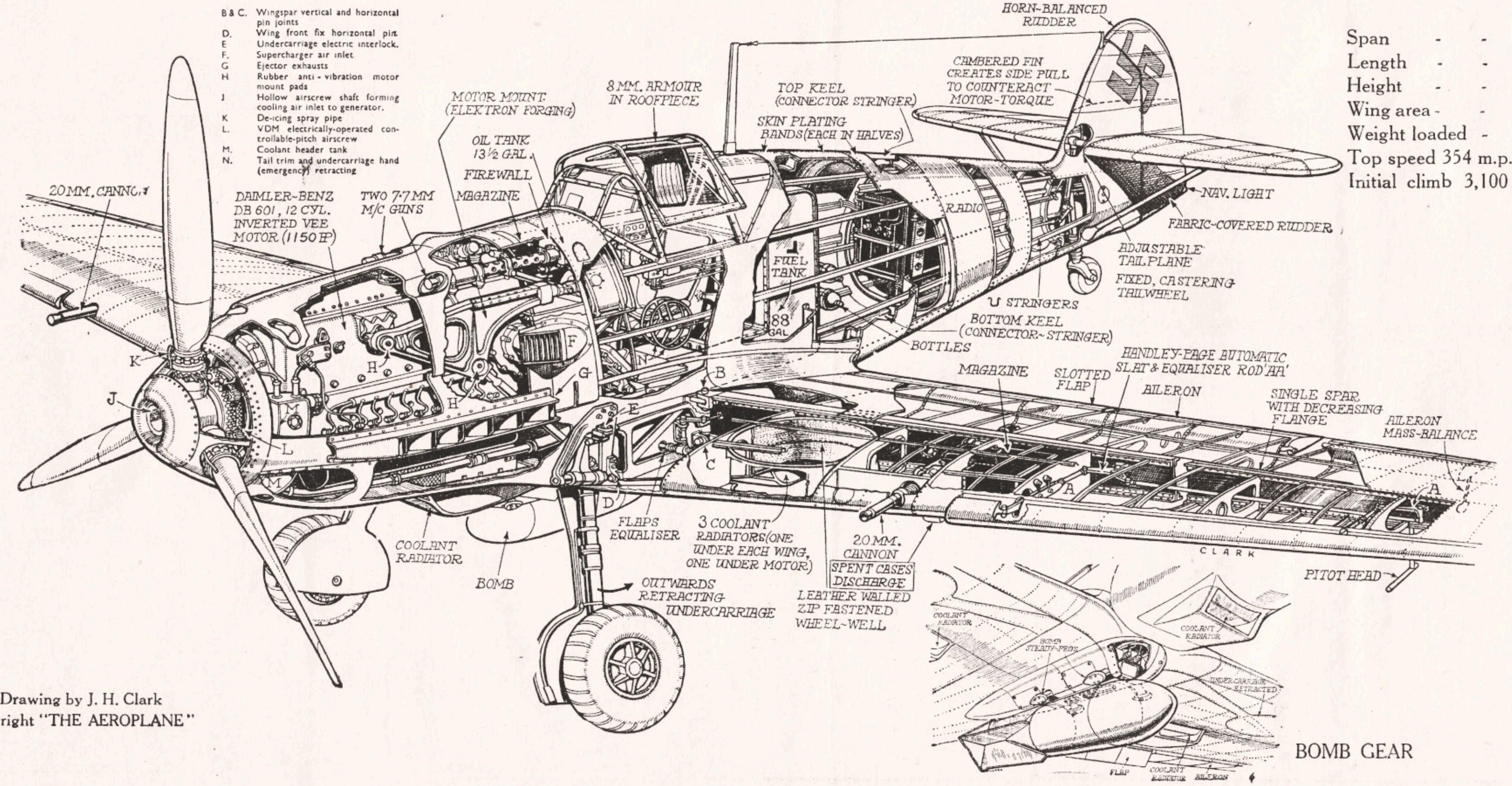
(To be continued.)

AEROPLANES IN DETAIL—VII

THE MESSERSCHMITT Me 109E SINGLE-SEAT FIGHTER. (1,150 h.p. Daimler-Benz DB. 601A motor)






20MM. CANNON
DAIMLER~BENZ DB 601, 12 CYL. INVERTED VEE MOTOR (1150 HP)
TWO 7·7MM M/C GUNS
MOTOR MOUNT (ELEKTRON FORGING)
OIL TANK 13½ GAL.
FIREWALL
MAGAZINE
8 MM. ARMOUR IN ROOFPIECE
TOP KEEL (CONNECTOR STRINGER)
SKIN PLATING BANDS (EACH IN HALVES)
HORN-BALANCED RUDDER
CAMBERED FIN CREATES SIDE PULL TO COUNTERACT MOTOR-TORQUE
RADIO
FUEL TANK
88 GAL
NAV. LIGHT
FABRIC-COVERED RUDDER
ADJUSTABLE TAILPLANE
FIXED, CASTERING TAILWHEEL
U STRINGERS
BOTTOM KEEL (CONNECTOR~STRINGER)
BOTTLES
MAGAZINE
SLOTTED FLAP
HANDLEY-PAGE AUTOMATIC SLAT & EQUALISER ROD 'AA'
AILERON
SINGLE SPAR WITH DECREASING FLANGE
AILERON MASS-BALANCE
A
B
C
D
E
F
G
H
J
K
L
M
N
CLARK
PITOT HEAD
COOLANT RADIATOR
BOMB
OUTWARDS RETRACTING UNDERCARRIAGE
FLAPS EQUALISER
3 COOLANT RADIATORS (ONE UNDER EACH WING, ONE UNDER MOTOR)
20 MM. CANNON
SPENT CASES DISCHARGE
LEATHER WALLED ZIP FASTENED WHEEL~WELL
COOLANT RADIATOR
BOMB STEADY-PEGS
COOLANT RADIATOR
UNDERCARRIAGE RETRACTED
FLAP
COOLANT RADIATOR
AILERON

BOMB GEAR

B & C.	Wingspar vertical and horizontal pin joints
D.	Wing front fix horizontal pin
E	Undercarriage electric interlock.
F.	Supercharger air inlet
G	Ejector exhausts
H	Rubber anti-vibration motor mount pads
J	Hollow airscrew shaft forming cooling air inlet to generator.
K	De-icing spray pipe
L.	VDM electrically-operated controllable-pitch airscrew
M.	Coolant header tank
N.	Tail trim and undercarriage hand (emergency) retracting

Span - - -	32 ft. 3 in.
Length - - -	26 ft. 8 in.
Height - - -	7 ft, 6 in.
Wing area - - -	176.5 sq. ft.
Weight loaded - -	5,590 lb.

Top speed 354 m.p.h. at 12,300 ft.
Initial climb 3,100 ft. per minute.

Drawing by J. H. Clark
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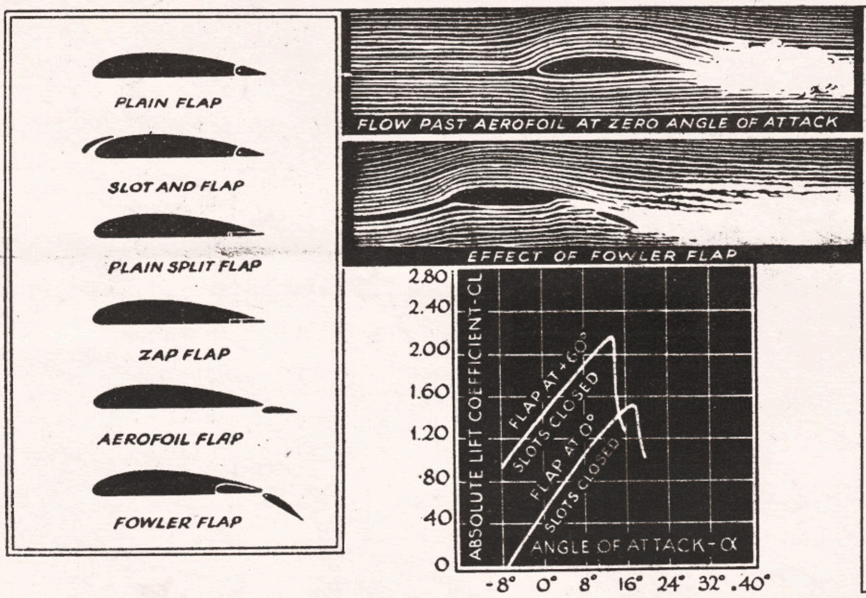
TRAILING-EDGE FLAPS



		A	B	C	D	E	F	G
PLAIN AEROFOIL			·645	15°				
PLAIN FLAP		45°	·975	12°	51%		51%	
SLOTTED FLAP		45°	·990	12°	53%	1·5%	42%	NONE
FIXED SLOT			·886	24°	37%	NONE	NONE	NONE
SLOT AND PLAIN FLAP		45°	1·091	19°	69%	12%	7%	NONE
SLOT AND SLOTTED FLAP		45°	1·130	19°	75%	16%	10%	NONE
SPLIT FLAP		50°	1·08	14°	70%	10·7%	63%	8%
ZAP FLAP		60°	1·17	13°	85%	20·5%	77%	17·5%
FOWLER FLAP		40°	1·211	15°	90%	24·3%	83%	21·2%

FLAPS AND THEIR WORKING.—On the left are the six most common types of trailing-edge wing flaps, employed to reduce the landing-speed and steepen the glide of aeroplanes to which they are fitted. The effect of a Fowler flap on the air flow is seen at the top. Below is a graph showing the effect on the lift of a wing as the angle of attack is increased. The gain in lift with the flap lowered is well shown, although the stall occurs earlier at 15 degrees instead of 17 degrees. On the right are representative figures. Column "A" denotes angle of flap to main aerofoil, "B" is the maximum lift coefficient (C_L), "C" is the angle of attack for maximum lift, "D" is the percentage improvement of lift over a plain aerofoil and "E" over an aerofoil with plain flap, "F" and "G" are the same percentages represented as improvements in speed range—the ratio between maximum and minimum speeds.

"The Aero Modeller" Identification Competition

THOSE who delight in the "Where and What" feature on the back page of THE AEROPLANE SPOTTER will revel in an excellent Identification Competition which begins in the March issue of "The Aero Modeller." We understand that the competition is being run over three months and that the first prize is £50 and £25 for runners-up. There is no entry fee and Spotters who fancy themselves at recognising odd pieces of 130 different aeroplanes may find their skill is lucrative.

Solution to Mental Aerobatics—IX

GREENSTED flew the Hurricane, Bleaney the Defiant, Owner the Proctor, Hall the Whitley, Stammers the Battle.

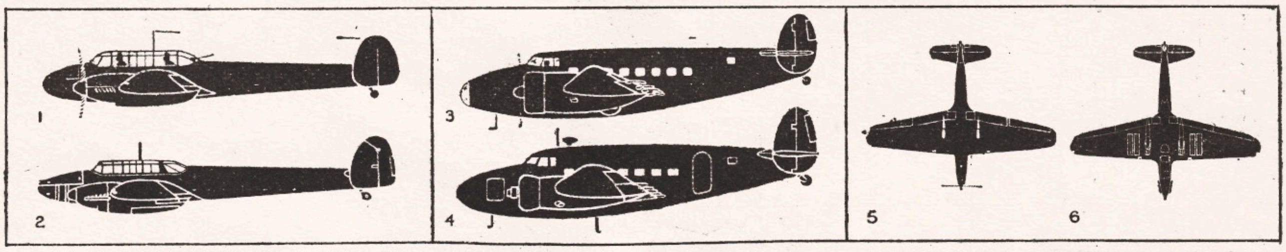
Mental Aerobatics—X

Stewart, Walker, Turner and Grey flew a Boston, a Mohawk, a Cleveland and a Martlet.
Walker's motor cut.
The pilot of the Mohawk was an only child.
Turner's wheels disappeared into the fuselage.
Stewart's gunner was Walker's brother.
Turner flew a monoplane.

ANSWER TO LAST WEEK'S CROSSWORD

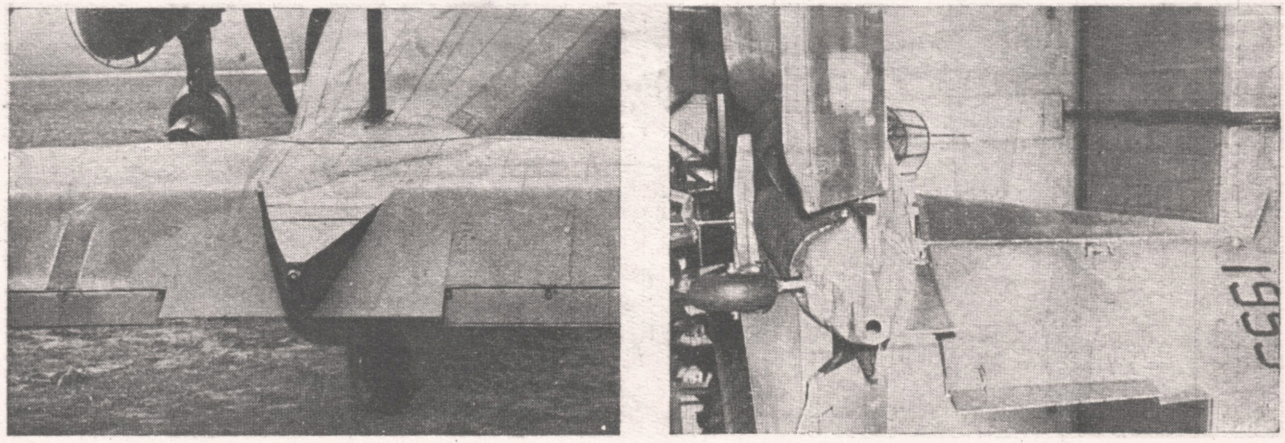
ACROSS.—1, Magister. 9, Arado. 10, Gale. 12, Skuas. 13, Fir. 14, H.P. 15, B.S. 16, Emerge. 19, Pet. 20, RO. 21, Aero. 22, Monospar. 25, Irak. 26, CP. 27, Te. 28, Timor. 29, Allison.

DOWN.—1, Master. 2, Ark. 3, Gauge. 4, IDA. 5, SOS. 6, E.G. 7, R.A.F. 8, Zerstorer. 11, Liberator. 14, He. 17, M.O. 18, Gun. 19, Pep. 21, Aspin. 22, Mail. 23, O.K. 24, Octo. 25, Isa.



A MATTER OF DETAIL.—Although none of these silhouettes is so inaccurate as to be unrecognisable, three of them are not correct in detail, yet are widely used. Which are the correct silhouettes and which aeroplanes do they represent? Turn the page for the correct answers.

The correct silhouettes are: 2, Messerschmitt Me 110; 4, Lockheed 14; and 6, Fairey Battle bomber.



WHERE AND WHAT?—Two more posers to test detailed knowledge. The problems last week were (left) the nose of a Messerschmitt Me 109E and (right) the view from the pilot's cockpit of a Blohm and Voss Ha 139.

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